

PROJECT NUMBER: 1902
PROJECT TITLE: Tobacco Microbiology
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PERIOD COVERED: April, 1988

I. SHREDDED STEM STUDY (FOR PROJECT ART)

- A. Objective: To determine if the ART process results in changes to the microbial numbers in shredded bright stems (12% and 35% OV's) after being stored for 0, 24, 48, 72, and 96 hours and 1,2,4,8, and 12 weeks at 37°C (3).
- B. Results: Shredded bright stem samples (12% and 35% OV) were tested before the citrate spray (12% OV), after the citrate spray (35% OV), and post-ART dried or "as is" (12% and 35% OV, respectively). Results from up to 12 weeks of storage showed no significant increase in bacterial counts (1,2). Mold and yeast showed a steady decline and remained within an acceptable range.
- C. Plans: This is an ongoing study.
- D. References:
1. Jones, J. Notebook No. 8590, pp. 6-20, 21, 23, 25, 27, 28.
 2. Ayers, D. Monthly Summary Acc. No. 88-022, March, 1988.

II. SHREDDED STEM STUDY (MICROBIAL STABILITY OF POST-ART SAMPLES)

- A. Objective: To determine if post-ART treated stems (35% OV) can be stored for up to 24 hours without significant change in microbial numbers.
- B. Results: Although quite variable, bacterial counts indicated no statistically significant increase during the 24 hours of storage. Mold and yeast were below 10 CFU/g stem and did not increase during the study (1). Low molecular weight organic acids were run at hours 0 and 19 and indicated that no significant changes occurred in these parameters (2).
- C. Plans: Document results.
- D. References:
1. Gaines, O. Notebook No. 8505, pp. 144-145, 151-156.
 2. Crockett, E. Notebook No. 8563, pp. 84-90, 122-134.

III. SHREDDED STEM STUDY (STORAGE OF POST-ART DRIED SAMPLES)

- A. Objective: To determine the effect of long-term storage on microbial counts in the post-ART dried samples (12% OV).
- B. Results: After 4 weeks of storage the post-ART dried samples from experiments 1, 4, and 5 exhibited a decrease in bacterial counts as compared to initial counts. Experiments 2 and 3 showed no change in bacterial counts. Mold and yeast counts were within an acceptable range (1).
- C. Plans: Complete 8 and 12 week storage samples.

D. References:

1. Crockett, E. Notebook No. 8563, pp. 79-83, 91-115, 135.

IV. RL/RCB ALTERNATE HUMECTANT PROGRAM (PARK 500 AND BL PLANT RUNS)

- A. Objective: To determine if RL and RCB, produced as part of the Alternate Humectant Program, differ in microbial numbers between control and test sheets (1).
- B. Results: RL control and test sheets did not indicate a difference in bacterial, mold, or yeast counts with the time 0 (T=0) samples (2). RCB sheets showed slightly higher bacterial counts on the 2 samples with no class tobacco (special control and test) as compared to the control with class tobacco. Mold and yeast remained within an acceptable range for both RL and RCB samples.
- C. Plans: This is an ongoing study for the RCB sheets.

D. References:

1. Mooz, E. Second Revised Plan for the Alternate Humectant Program for 1988 : Production of a PG/G-Free Cigarette, 20 January 1988.
2. Jones, J. Notebook No. 8590, pp. 26, 29-31, 34-35.

V. HOGSHEAD, BOX, AND BALE STUDY FOR BURLEY (1987 CROP YEAR)

- A. Objective: To determine if differences exist in microbial numbers, over a 3 year period, in Burley stored in Hogsheads, Boxes, and Bales in the Commerce Road Warehouse.
- B. Results: Bacterial counts show fluctuations within and among the different container types (1). There did not appear to be a statistical difference in bacterial counts among the 3 types of containers. The majority of samples decreased or remained the same in mold and yeast counts. A memo has been written for crop year 1986 (2).

C. Plans: Crop Year 1987 samples will be done in April, 1988.

D. References:

1. Crockett, E. Notebook No. 8563, pp. 42-50, 80-94, 113-115.
2. Crockett, E. Microbial Analysis of Burley Tobacco as Part of the Hogshead, Box, and Bale Study (1986 Crop Year After 1 Year of Storage), 15 April 1988.

VI. VALIDATION OF THE BACTOMETER

- A. Objective: To determine the effect of spores versus vegetative cells on detection time in the Bactometer.
- B. Results: Two experiments have been completed to date and results are being analyzed (1).
- C. Plans: Repeat the experiment.
- D. References: Chadick, D. Notebook No. 8265, p. 27.